

The proposed location of a solid waste landfill within a given jurisdiction is primarily a local land use issue. The DEQ usually processes the solid waste landfill permit in three stages. The first stage is Notice of Intent (NOI), the second stage is Siting Evaluation, which is usually referred to as the **Part A Application**, and the third stage is Detailed Design and Operations, which is usually referred to as the **Part B Permit Application**. Prior to submitting the NOI to DEQ for developing a new landfill or an amendment of an existing landfill, the permittee/owner/applicant i.e. whoever is proposing to develop the landfill has to ask for a certification from the local government (County, city, or town) for siting a landfill in a particular location of the county, city, or town.

If the proposal is for a **sanitary landfill or a transfer station**, the applicant/owner needs to publish a public notice in a local newspaper once a week for two consecutive weeks and hold a public meeting in the locality at least 14 days after the first public notice published in the newspaper. The purpose of the public meeting is to identify issues of concern, to facilitate communication, and to establish a dialogue between the applicant and persons who may be affected by the issuance of a permit. The local residents can attend the public meeting and voice their concerns. The residents concerns and the applicant's response to the concerns are evaluated by the DEQ permit review staff under the purview of the applicable laws and regulations during the permit review process. If the applicant is a local governing body (i.e. County, city, or town), it needs to form a citizens' advisory group that would assist the applicant with the proposed site selection, facilitate communication and establish a dialogue between the applicant and affected persons.

The NOI provides the precise location of the proposed landfill along with other information and is the beginning of the permitting process. At a minimum, the NOI must include the following documentations/information:

1. A letter from the applicant stating the intended use of the proposed landfill accompanied by area and site maps;
2. Names and addresses along with the social security numbers of the people who will be responsible for managing the landfill, which is usually referred to as **Disclosure Statement**;
3. Local government certification (from the County, City, or Town, where the proposed landfill will be located) saying that the proposed landfill location has been properly zoned for landfill and it meets all the local ordinances;
4. For a sanitary landfill or transfer station, the documentations and findings from the public meeting, as mentioned in the preceding paragraph;
5. For a sanitary landfill, the documents certifying that the applicant has contacted and contracted (if entered on any contract) the surrounding localities and other localities in the state for contractual agreement to reserve of spaces in the landfill for their waste, which is usually referred to as **Disposal Capacity Guarantee**;

6. For a sanitary landfill, if the applicant is a private company, the applicant has to submit a proof of contract, which is usually referred to as **Host Agreement**, between the local government (County, city, or town, where the landfill will be located) and the applicant. The host agreement shall include the following provisions at a minimum:
 - The amount of financial compensation the applicant will provide the host locality;
 - The daily travel routes and traffic volumes;
 - The daily disposal limit; and
 - The anticipated service area of the facility.

The host agreement shall also contain a provision that the applicant will pay the full cost of a least one full-time employee of the host locality. The employee's responsibilities will include monitoring and inspecting waste disposal practices in the locality.

Moreover, the host agreement shall provide that the applicant shall, when requested by the host locality, split air and water samples so that the host locality may independently test the samples, with all associated costs paid for by the applicant. All such sampling results shall be provided to the department.

7. A justification saying that the landfill is needed in the subject location to manage the waste and the need is consistent with the local or regional solid waste management plan (**SWMP**) for next planning period, usually it is 20 years; and
8. A traffic approval letter and/or a traffic adequacy report (for a sanitary landfill) from the Virginia Department of Transportation (VDOT), County, City, or Town, whoever is in charge of the local road system, certifying that the road system surrounding the landfill is sufficient to handle the landfill and other local traffic volume properly during the life of the landfill.

DEQ's qualified permit writers review the NOI in accordance with the applicable laws and regulations. Once DEQ finds that the NOI meets all the applicable laws and the regulations, DEQ advises the applicant to submit the Part A application.

The Part A application technically evaluates the site as required by the Virginia Solid Waste Management Regulations and at a minimum, the following documentations/information must be included:

1. A map showing the site with facility boundary, boundary where the waste actually will be placed, all homes, building, structures within the facility, lots and blocks taken from the tax map for the site of the proposed facility and all adjacent (contiguous) properties, base floodplain, i.e. which areas will be submerged if a 100-year flood occurs, existing land uses and zoning classification, all water supply wells, springs, or intakes both for public and private, all utility lines, pipelines, mines, wells, parks, recreation areas, surface water bodies, dams, historic sites, wetland areas, monuments, cemeteries, wildlife refuges, etc. The map also must delineate the surrounding areas 500 feet around the property boundary;

2. Proof (usually the recorded deed) that shows that the applicant has ownership or legal control of the property where the landfill is proposed to be built;
3. A detailed report of the soil of the area where the waste will be dumped, how close is the groundwater to the ground surface, how is the geology of the site, etc.;
4. If the landfill (usually it is referred to **sanitary landfill**) is for dumping wastes that are generated from houses, schools, business, etc., a detailed traffic report and an approval letter from VDOT or County, or City, whoever maintains the local road system around the proposed landfill;
5. For sanitary landfills, a detailed report that will identify and address the potential impact of the landfill on parks, recreational areas, wildlife management areas, critical habitat areas of endangered species as designated by applicable local, state, or federal agencies, public water supplies, marine resources, wetlands, historic sites, fish and wildlife, water quality, and tourism. In order to address these impacts sometimes the applicant needs to submit documents from Department of Game Inland Fisheries (**DGIF**), Department of Conservation and Recreation (**DCR**), Department of Historic Resources (**DHR**), and other related state and federal agencies, as necessary;
6. If any streams or wetlands are proposed to be taken or disturbed for the landfill, the applicant has to obtain permits from the **US Army Corps of Engineers** and **DEQ Water Division** and submit the permits with the Part A application. The **US Army Corps of Engineers** and **DEQ Water Division** permits usually require the applicant to avoid wetlands and stream if possible, if not then minimize as much as possible, if not then compensate and mitigate by creating new wetlands and streams equal to or more or sometimes two times of what is being proposed to be taken and disturbed for the landfill;
7. For sanitary landfill, if the landfill seems to be located within 5 miles of any airport, the applicant has to notify the Federal Aviation Authority (**FAA**) and local aviation authority saying that s/he is planning to develop a landfill in the proposed location. The applicant has to submit the response from the FAA with the Part A application;
8. For sanitary landfills, the applicant has to submit documents proving that the landfill will not be destroyed/ dismantled by earth quake if it is located in a earth quake prone area; and
9. For sanitary landfills, the applicant has to submit documents proving that the landfill is not located within **100 feet** of any river, streams, or other regularly flowing surface water body; **500 feet** of any well, spring, or other groundwater source of drinking water; **200 feet** of any house, schools, hospital, nursing home, or recreation park areas; and **1 mile** of any existing surface or groundwater public water supply intake or reservoir. It should be noted that the above siting criteria are subject to regulatory change; therefore previously permitted facilities may not comply with all current regulatory siting criteria.

The Part A application goes through a series of technical reviews by DEQ's qualified permit writers to make sure that all the applicable laws and regulations have been followed and it meets

the minimum requirements. Once DEQ finds that the Part A application is technically adequate and it meets all the minimum requirements of applicable laws and the regulations, DEQ approves the Part A application and advises the applicant to submit the Part B application.

The Part B application is a detailed design and technical evaluation of the landfill that must include how the landfill will be operated, how many employees the landfill will need, how many compactors, or other equipment the facility will have, how often the waste will be covered with soil or some other materials so that no waste can be blown by the wind and picked by the birds, how much waste will be disposed of in a day, how long the landfill will last for waste disposal, what kind of barrier (usually it is referred to as **liner system**) will be installed at the bottom of the landfill so that any liquid (usually it is called **leachate**) from the waste can not go to the nearby streams, rivers, and groundwater, how the leachate will be collected, treated, and disposed of, how the drainage structures will be sized and located to prevent ponding, erosion, and sedimentation, etc. For sanitary landfills, Federal Government i.e. USEPA requires a liner system that is generally referred to as a **Subtitle D Liner**. A Subtitle D liner has a 2 feet thick compacted clay layer with a very low permeability (usually less than or equal to 1.0×10^{-7} cm/sec) that means the compacted clay keeps the water from passing through. If a drop of water/leachate falls on top of the clay, it would take almost **19 years** to pass through the 2 feet thick clay layer. Then the 2 feet clay layer is covered with a 60-mil (that is 0.06 inch thick plastic) High Density Polyethylene (HDPE). This second liner, when installed properly, prevents any leakage of leachate (liquid) from the disposal area. The plastic is then covered with a 1 foot thick sandy soil or stone layer which allows the leachate to flow to collection pipes so it can be collected for treatment and safe disposal.

Virginia regulations conditionally allow for an **Alternate Liner** system that has components different than what are required in the Subtitle D liner. In this case DEQ's qualified scientists run computer models to check that the alternate liner will be more protective than the subtitle D liner. For example, some alternate liner replaces the 2 feet thick clay layer with a 0.4-inch (10-mm) thick specially manufactured clay mat called geosynthetic clay liner (**GCL**). A GCL is highly impermeable (normally less than or equal to 1.0×10^{-9} cm/sec). What it really means is, if a drop of water/leachate falls on top of the GCL, it would take almost **32 years** to pass through the 0.4-inch thick GCL. Therefore, GCL is more protective than subtitle D liner if it can be installed properly with no defects in it.

The Part B application also must include a landfill gas management plan, a groundwater monitoring plan, and a landfill closure and post-closure plan. The landfill gas management plan provides a procedure and outline as to how the landfill gas will be recovered and used, burned, or released into the atmosphere. The groundwater monitoring plan sets the requirements for how the groundwater will be monitored so that any contamination of groundwater can be detected early and mitigated. Finally the landfill closure and post-closure plan describes how the facility or portions thereof will be closed and how often and how long the leachate, gas, and groundwater will be monitored after the landfill is closed. The landfill is usually covered with materials (mainly plastic and/or soil) when no more space is available for dumping waste to minimize rainwater going through the waste, generating leachate, and possibly contaminating the groundwater. The post-closure monitoring lasts **30 years** for sanitary landfills and **10 years** for CDD and industrial landfills.

Like the Part A application, the Part B permit application also goes through a series of technical reviews by DEQ's qualified permit writers (engineers and geologists) to make sure that all the applicable laws and regulations have been followed and it meets the minimum requirements. Once the DEQ permit writers find that the application is technically sound and it meets the minimum requirements, a draft permit is issued and a public notice is published in the local newspaper with a date of public hearing where the local residents can voice their concerns/opinions regarding the design and operation of the landfill and ask questions. The public notice is also posted in the DEQ's website and mailed to the adjacent County and City offices. The draft permit is made available for local residents in the local public library, County, or City Offices where the landfill is located for public review and comments right after the publication of the public notice. The public hearing occurs in a place (public library, County, or city offices) closed to the proposed location of the landfill at least 30 days after the public notice is published. DEQ also allows the local residents to send comments by email and surface mail for 15 more days after the public hearing, which is usually referred to as the **public comment period**. After the public comment period is over, DEQ permit writers prepare a written response to every comment/concern of the local residents and are communicated with the individual commenter. Based on the results of the public hearing and public comments, DEQ makes the decision to either issue or deny the permit.

DEQ maintains a list of all permit applications received on the agency website at <http://www.deq.virginia.gov/waste/sitingapprovals.html>. Processing of NOI and the Part A application occurs at DEQ's central office. The contact person for NOI and Part A application is Dr. M. A. Karim, P.E. and he can be reached by telephone at (804) 698-4196, and/or by email at makarim@deq.virginia.gov. Processing of the Part B permit application occurs at one of the seven DEQ's regional offices as follows:

1. Northern Virginia Regional Office (**NVRO**): NVRO serves **14** counties: Arlington, Caroline, Culpeper, Fairfax, Fauquier, King George, Loudoun, Louisa, Madison, Orange, Prince William, Rappahannock, Spotsylvania and Stafford; and **6** cities: Alexandria, Fairfax, Falls Church, Fredericksburg, Manassas and Manassas Park. The contact person for this regional office is Mr. Richard Doucette and he can be reached by telephone at (703) 583-3813, and/or by email at rcdoucette@deq.virginia.gov.
2. Piedmont Regional Office (**PRO**): PRO serves **24** counties: Amelia, Brunswick, Charles City, Chesterfield, Dinwiddie, Essex, Gloucester, Goochland, Greensville, Hanover, Henrico, King and Queen, King William, Lancaster, Mathews, Middlesex, New Kent, Northumberland, Powhatan, Prince George, Richmond, Surry, Sussex and Westmoreland; and **5** cities: Colonial Heights, Emporia, Hopewell, Petersburg and Richmond. The contact person for this regional office is Mr. Robert H. Timmins, Jr. and he can be reached by telephone at (804) 527-5161, and/or by email at rhtimmins@deq.virginia.gov.
3. South Central Regional Office (**SCRO**): SCRO serves **12** counties: Amherst, Appomattox, Buckingham, Campbell, Charlotte, Cumberland, Halifax, Lunenburg, Mecklenburg, Nottoway, Pittsylvania and Prince Edward; and **2** cities: Danville and Lynchburg. The contact person for this regional office is Mr. Robert Goode and he can be reached by telephone at (434) 582-6217, and/or by email at rpgoode@deq.virginia.gov

4. Southwest Regional Office (**SWRO**): SWRO serves **13** counties: Bland, Buchanan, Carroll, Dickenson, Grayson, Lee, Russell, Scott, Smyth, Tazewell, Washington, Wise and Wythe; and **3** cities: Bristol, Galax and Norton. The contact person for this regional office is Mr. Dallas Sizemore and he can be reached by telephone at (276) 676-4842, and/or by email at drsizemore@deq.virginia.gov.
5. Tidewater Regional Office (**TRO**): TRO serves **6** counties: Accomack, Isle of Wight, James City, Northampton, Southampton and York; and **10** cities: Chesapeake, Franklin, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach and Williamsburg. The contact person for this regional office is Mr. Milton Johnston and he can be reached by telephone at (757) 518-2151, and/or by email at mljohnston@deq.virginia.gov.
6. Valley Regional Office (**VRO**): VRO serves **14** counties: Albemarle, Augusta, Bath, Clarke, Fluvanna, Frederick, Greene, Highland, Nelson, Page, Rockbridge, Rockingham, Shenandoah and Warren; and **8** cities: Buena Vista, Charlottesville, Harrisonburg, Lexington, Staunton, Waynesboro and Winchester. The contact person for this regional office is Mr. Graham Simmerman and he can be reached by telephone at (540) 574-7865, and/or by email at ghsimmerman@deq.virginia.gov.
7. West Central Regional Office (**WCRO**): WCRO serves **12** counties: Alleghany, Bedford, Botetourt, Craig, Floyd, Franklin, Giles, Henry, Montgomery, Patrick, Pulaski and Roanoke; and **7** cities: Bedford, Clifton Forge, Covington, Martinsville, Radford, Roanoke and Salem. The contact person for this regional office is Mr. Aziz Farahmand and he can be reached by telephone at (540) 562-6872, and/or by email at afarahmand@deq.virginia.gov.

The agency website at <http://www.deq.virginia.gov> can be visited for further information that is not mentioned in this guidance document.